

ONTARIO MINISTRY OF ENVIRONMENT



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information on courses & workshops

1977-78

training &
certification

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Ontario

Ministry
of the
Environment

The Honourable
George A. Kerr, Q.C.,
Minister

Everett Biggs,
Deputy Minister

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MINISTRY OF THE ENVIRONMENT

TECHNICAL TRAINING PROGRAM

1977-1978

Preface

The responsibilities of the Training and Certification Section, Personnel Services Branch, Ontario Ministry of the Environment, include the development and conduct of training and certification programs for personnel engaged in the protection and upgrading of the natural environment. By working in close co-operation with professional, industrial and government organizations, programs are designed to meet the needs of Ministry and non-Ministry staffs. As additional requirements are identified, new programs will be developed.

Information not included in the brochure may be obtained from:

Registration Secretary
Training and Certification Section
Personnel Services Branch
135 St. Clair Avenue West
TORONTO, Ontario M4V 1P5

Telephone: (416) 965-1027



Environment Ontario
Laboratory Library
125 Resources Rd.
Etobicoke, Ontario M9P 3V6
Canada

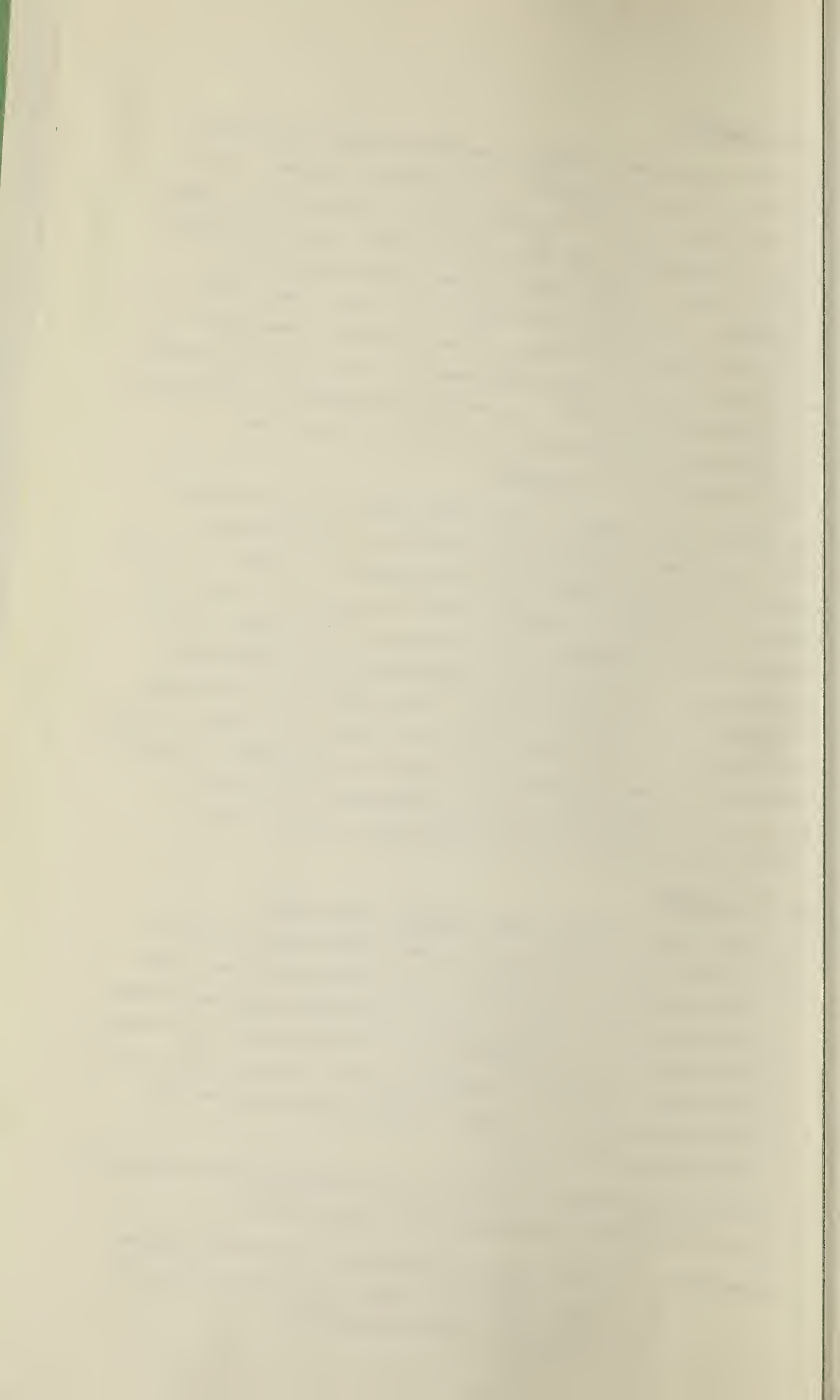
TRAINING PHILOSOPHY

1. In general, programs employ the Behavioural Objective Approach to Training (BOAT). A training manual, prepared for each course or workshop, as a reference text, provides information on the topics and lists objectives which tell the trainee what he must know and do to successfully complete the course. At the same time it reminds the instructor what he must teach, describe or demonstrate so that the performance of the trainee meets the required standards. To verify successful completion, both practical (hands-on) and written tests are administered to the trainees.
2. Instructors are for the most part drawn from Ministry staff and have usually been involved in developing material for the courses and workshops. As part of their normal work they are usually also responsible for providing advice, guidance and practical assistance to the operational staff, so they understand the day-to-day problems faced in the field. Based on this knowledge and background, the instructor can deal with any relevant questions raised during the course or workshop. Furthermore, he is identified to the trainee as a point of contact for advice on problems which might arise.

SCOPE OF PROGRAM

3. Courses and workshops are offered annually, with most being scheduled between September and May. A course consists of lecture and discussion periods interspersed with audio-visual presentations and other demonstrations. A workshop is a course which includes substantial "hands-on" participation, during which the trainee receives practical training and errors are corrected as they occur.
4. Training programs offered by this Ministry and described in the attached Appendices are listed below:

- Appendix 1. Basic Sewage Treatment Operation Course
- 2. Basic Water Treatment Operation Course
- 3. Activated Sludge Workshop

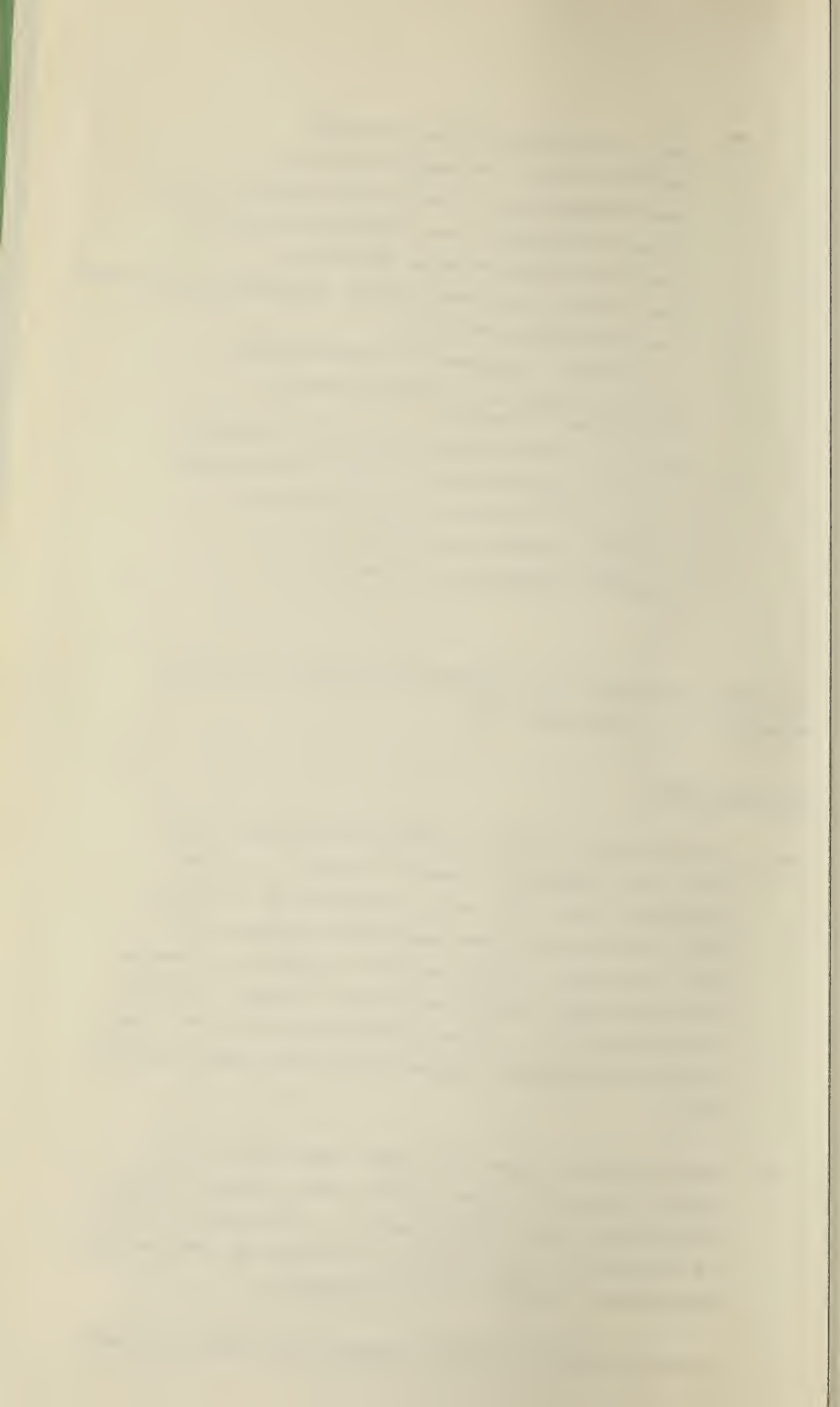


4. Basic Gas Chlorination Workshop
5. Surface Water Treatment Workshop
6. Maintenance Gas Fitters Certificate Course
7. Primary Treatment and Digestion Workshop
8. Preventive Maintenance Workshop
9. Monitoring Water/Wastewater Treatment Operations
10. Pump Operation Workshop
11. Industrial Abatement-Air Management
12. Visible Emissions Identification Certificate Course
13. Acoustic Technology Certificate Course
14. Acoustic Technology in Land Use Planning
15. Sewer and Watermain Design Course
16. MEA/MOE Inspectors Course No.1
17. MEA/MOE Inspectors Course No.2

5. A course calendar is at Appendix 18 and the program schedule is at Appendix 19.

6. Prerequisites

- (a) *Certain courses, because of prerequisites and/or course design, are restricted to specific groups. Courses annotated "MOE only" are available to Ministry staff other than plant operators; "Operators only" restricts these courses to water and wastewater treatment plant employers, either Ministry or non-Ministry. If no restriction is shown, anyone with the proper prerequisites may make application.*
- (b) Where prerequisites have been specified for a course, employers must ensure that course candidates meet these requirements. If an application is received for a candidate lacking the course prerequisites, it will not be accepted.
- (c) Certain advance courses require the Ministry Basic



Water or Sewage Course or equivalent as a pre-requisite. Equivalents to the Ministry Basic Courses include the courses previously offered by the OWRC.

7. Course Capacity

The capacity of each course, workshop and seminar is shown on the program schedule. If a course is over-subscribed, selection of candidates will be based on date of receipt of application.

APPLICATION PROCEDURES

8. An application must be submitted by letter:

- (a) For a Ministry employee, from a Regional Director, a Regional Manager, or a Branch Director.
- (b) For a non-Ministry employee, from the individual's employer.

9. The following information must be included:

- (a) Course and date. An acceptable alternate, if available, should be shown.
- (b) Full name of applicant and home address.
- (c) Job title, address of employment and department or office.

10. Registration Fee

The required registration fee for each course is stated in the appropriate appendix. Ministry employees may pay the fee on registration. Registration fees must accompany the applications of non-Ministry applicants, and

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF THE HISTORY OF ARTS
AND ARCHITECTURE

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AND ARCHITECTURE

- (a) For all courses except MEA/MOE co-sponsored courses (Appendices 15, 16 and 17), the cheque or money order must be made payable to Training and Certification Section.
 - (b) For MEA/MOE co-sponsored courses (Appendices 15, 16 and 17), the cheque or money order must be made payable to Municipal Engineers Association of Ontario.
11. An application (registration fee, if applicable) will be forwarded to the Registration Secretary at the address shown in the Preface and will not be accepted after the date shown on the course schedule and summarized below:

September Courses	-	August	15
October Courses	-	September	15
November Courses	-	October	15
December Courses	-	November	15
January Courses	-	December	15
February Courses	-	January	15
March Courses	-	February	15
April Courses	-		

12. As soon as possible after the closing date, the individual's employer will be notified of the acceptance or rejection of the application. If the course of first choice is oversubscribed and an alternate has been shown on the application, the nominee will be listed for the alternative course (if space is available), subject to confirmation by the employer.

Pre-Course Study

13. Prior to a course, an information package will be forwarded to each applicant. This will include general course information, a sketch map showing course location and, in most cases, reference material for pre-course study.
14. Pre-course study is required for many of the courses. *It is essential the employers encourage applicants to review the material provided for that purpose.* For certain courses, the

applicant will be required to submit solutions to problems forwarded with study material.

15. Course Completion

The appropriate appendix shows the minimum average to be attained for successful completion of the course. A candidate's results will be forwarded to his employer, *who is responsible for informing the individual.*

16. Training Facilities

- (a) These are located at the Ontario Experimental and Training Facility, (OEP) Brampton, the Ministry building at 4375 Chesswood Drive in Downsview, and the Ministry Laboratory, Resources Road, near the intersection of Islington Avenue and Highway 401. The sketch map at Appendix 20 shows these locations.
- (b) Training conducted outside of Toronto will be held in suitable accommodation obtained specifically for the session.

17. Transportation and Accommodation

- (a) These arrangements, including reservations, are the responsibility of the trainee. The sketch maps indicate motels and hotels which are within reasonable proximity to the training facilities. A list of hotels with approximate room costs is at Appendix 21.
- (b) Employers must ensure that trainees on arrival at the course location are in possession of sufficient funds to meet anticipated expenses, including the registration fee if not previously paid.

18. Dress and Deportment

- (a) Laboratory coats will be provided on workshops to protect personal clothing.
- (b) So that course timetable may be adhered to, trainees must be on time throughout the training session. Tardiness and/or absence by an individual will be reported to his employer.



COURSE DESCRIPTIONBASIC SEWAGE TREATMENT OPERATION COURSE**PURPOSE:**

The Basic Sewage Treatment Operation Course is designed primarily for operators in training and to increase on-the-job efficiency of wastewater treatment plant operators. The program stresses "the need to know" rather than the "nice to know" of all processes associated with wastewater treatment. This course is a prerequisite to the Activated Sludge Workshop, the Primary Treatment and Digestion Workshop.

SCOPE:

The course covers the following topics:

- A. SEWAGE CHARACTERISTICS
- B. BACTERIOLOGY OF SEWAGE
- C. PRIMARY TREATMENT
- D. THE ACTIVATED SLUDGE PROCESS
- E. DIGESTION OF SLUDGE
- F. SLUDGE HANDLING
- G. INDUSTRIAL WASTE
- H. CHLORINATION OF SEWAGE
- I. BASIC LABORATORY TESTS
- J. SAMPLING AND RECORD KEEPING
- K. SAFETY

PRE-COURSE**FAMILIARIZATION:**

Pre-course study material will be provided. When preparing to attend this course, an applicant must:

- (a) Review the Ministry course manual, Basic Sewage Treatment Operation;
- (b) Review the Ministry manual, Mathematics for Water and Sewage Operators;
- (c) Familiarize himself with the operations dealt with on the course.

PREREQUISITES:

None, but preference will be given to personnel engaged in the operation of wastewater treatment plants.

PASSING GRADE:

70%

REGISTRATION FEE: \$20 payable to "Training and Certification Section".

COURSE DESCRIPTIONBASIC WATER TREATMENT OPERATION COURSE*PURPOSE:*

The Basic Water Treatment Operation Course is designed primarily for operators in training and to increase on-the-job efficiency of water treatment plant operators. The program stresses "the need to know" rather than the "nice to know" of all processes associated with water treatment. This course is a prerequisite to the Surface Water Treatment Workshop,

SCOPE:

The Course covers the following topics:

- A. WATER BACTERIOLOGY AND SAMPLING
- B. PHYSICAL AND CHEMICAL CHARACTERISTICS
- C. GROUNDWATER SUPPLIES
- D. COAGULATION, FLOCCULATION AND SEDIMENTATION
- E. WATER FILTRATION
- F. CHLORINATION
- G. SAFETY
- H. LABORATORY TESTING
- I. RECORDS
- J. CARE, MAINTENANCE AND OPERATION OF A DISTRIBUTION SYSTEM.

*PRE-COURSE**FAMILIARIZATION:*

Pre-Course study material will be provided. When preparing to attend this course, an applicant must:

- (a) Review the Ministry course manual, Basic Water Treatment Operation;
- (b) Review the Ministry manual, Mathematics for Water and Sewage Operators;
- (c) Familiarize himself with the operations dealt with on the course.

PRE-REQUISITES:

None, but preference will be given to personnel engaged in the operation of water treatment plants.

PASSING GRADE:

70 percent.

REGISTRATION FEE: \$20.00 payable to "Training and Certification Section".

COURSE DESCRIPTIONACTIVATED SLUDGE WORKSHOP**PURPOSE:**

This workshop is designed to increase on-the-job efficiency of activated sludge treatment plant operators at all levels of responsibility. By emphasizing methods of process control it is specifically directed at an operator employed as, or likely to be promoted to, shift foreman, operator-in-charge or chief operator of an activated sludge plant.

SCOPE:

The workshop which includes considerable "hands-on" participation covers the following:

- A. ACTIVATED SLUDGE OPERATING PRINCIPLES
- B. FACTORS AFFECTING THE PROCESS
- C. SAMPLING AND FLOW MEASUREMENT
- D. IDENTIFICATION AND SOLUTION OF OPERATION PROBLEMS
- E. PHOSPHORUS REMOVAL
- F. MICROSCOPIC EXAMINATION
- G. LABORATORY TESTS INCLUDING DO, pH, BOD, PHOSPHOROUS DETERMINATION

**PRE-COURSE
FAMILIARIZATION:**

Pre-Course study material will be provided. When preparing to attend this workshop an applicant must:

- (a) Review the Ministry course manual, Activated Sludge Process;
- (b) Review the Ministry manual, Mathematics for Water and Sewage Operators;
- (c) Familiarize himself with the operations dealt with on the course;

PRE-REQUISITES:

It is essential that the applicant has successfully completed the Ministry of the Environment Basic Sewage Treatment Operation Course; or equivalent.

PASSING GRADE:

70 per cent

REGISTRATION FEE:

\$20.00 payable to "Training and Certification Section".

COURSE DESCRIPTION

BASIC GAS CHLORINATION WORKSHOP

PURPOSE:

The Basic Gas Chlorination Workshop is designed to familiarize the new or inexperienced operator with the operation of various types of gas chlorination equipment, as well as to teach maintenance and troubleshooting procedures.

SCOPE:

The Workshop which includes considerable "hands-on" participation covers the following topics:

- A. CHLORINATION THEORY
- B. COMPONENTS OF A GAS CHLORINATION INSTALLATION
- C. CONTROL SYSTEMS
- D. STORAGE AND HANDLING OF CHLORINE GAS CYLINDERS
- E. SAFETY PRACTICES
- F. CHLORINATION EQUIPMENT & COMPONENTS
- G. START-UP & SHUT-DOWN PROCEDURES
- H. GENERAL MAINTENANCE
- I. TROUBLE SHOOTING
- J. CHLORINATION LABORATORY TESTS

PRE-COURSE

FAMILIARIZATION:

Pre-course study material, including the Basic Gas Chlorination manual, will be provided.

PREREQUISITES:

None, but preference will be given to water and wastewater treatment plant personnel, operators of chlorination equipment used in industries as well as at recreational facilities.

PASSING GRADE:

70%

REGISTRATION FEE:

\$20.00 payable to "Training and Certification Section".

COURSE DESCRIPTIONSURFACE WATER TREATMENT WORKSHOP*PURPOSE:*

The Surface Water Treatment Workshop is designed to increase the knowledge of experienced water treatment plant operators. It is specifically directed at an operator employed as, or likely to be promoted to, shift foreman, operator-in-charge or chief operator of a water treatment plant.

SCOPE:

The workshop which includes considerable "hands-on" participation covers the following topics:

- A. BASIC WATER CHEMISTRY
- B. COAGULATION
- C. FILTRATION
- D. WATER TREATMENT CHEMICALS
- E. TASTE & ODOUR CONTROL
- F. LABORATORY ANALYSES
- G. MICROBIOLOGICAL CONSIDERATIONS

*PRE-COURSE**FAMILIARIZATION:*

Pre-course study material will be provided. When preparing to attend this workshop an applicant must:

- (a) Review the Ministry course manual, Surface Water Treatment;
- (b) Review the Ministry manual, Mathematics for Water and Sewage Operators;
- (c) Familiarize himself with the operations dealt with on the course;

PRE-REQUISITES:

It is essential that the applicant has successfully completed the Ministry of the Environment Basic Water Treatment Operator Course; or equivalent.

PASSING GRADE:

70 per cent

REGISTRATION FEE:

\$20.00 payable to "Training & Certification Section".

COURSE DESCRIPTION

MAINTENANCE GAS FITTERS CERTIFICATE COURSE

PURPOSE:

As required by the Energy Act 1971 and related Regulations, the Maintenance Gas Fitters Certificate Course is designed to certify personnel who operate and maintain the gas system in a wastewater treatment plant.

SCOPE:

The course covers the following topics:

- A. *DIGESTER MAINTENANCE*
- B. *DIGESTER GAS TRANSMISSION LINES*
- C. *CONTROL AND SAFETY EQUIPMENT*
- D. *BOILER AND BOILER CONTROL TRAIN*

PRE-COURSE

FAMILIARIZATION:

Pre-study material will be provided. When preparing to attend this course, an applicant should familiarize himself with the operations dealt with on the course, and

- (a) review the Gas Utilization Code Book, Regulations 254 and Regulation 255 Propane
- (b) review the Interim Safety Requirements (ISR)105
- (c) review the Installation Code for Oil Burning Equipment CBA Standard B139-71.

PREREQUISITES:

The applicant must be employed in the operation and maintenance of the gas system in a wastewater treatment plant.

PASSING GRADE:

A passing grade of 75 per cent must be attained on a final test administered by the Energy Safety Branch of the Ministry of Consumer and Commercial Relations.

REGISTRATION FEE:

\$20.00 payable to "Training and Certification Section".

COURSE DESCRIPTIONPRIMARY TREATMENT AND DIGESTION WORKSHOP*PURPOSE:*

The Primary Treatment and Digestion Workshop is designed to increase the knowledge of primary wastewater treatment plant operators. It is specifically directed at an operator employed as, or likely to be promoted to, shift foreman, operator-in-charge or chief operator of a primary treatment plant.

SCOPE:

The course covers the following topics:

- A. RAW SEWAGE CHARACTERISTICS
- B. PUMPING STATIONS & STANDBY POWER
- C. PRETREATMENT WORKS
- D. PRIMARY SEDIMENTATION
- E. LABORATORY ANALYSES
- F. ANAEROBIC AND AEROBIC DIGESTION - THEORY
- OPERATION & CONTROLS
- PROBLEMS
- G. SLUDGE PROCESSING

*PRE-COURSE**FAMILIARIZATION:*

Pre-course study material will be provided. When preparing to attend this workshop, the applicant should:

- (a) review the Primary Treatment and Digestion manual.
- (b) review basic arithmetic (addition, multiplication, division, subtraction, percentages and decimals) at the Grade VIII level.
- (c) familiarize himself with the operations dealt with on the course.

PRE-REQUISITES:

MOE Basic Sewage Treatment Operation Course or equivalent.

PASSING GRADE:

70 per cent.

REGISTRATION FEE:

\$20.00 payable to "Training and Certification Section".

COURSE DESCRIPTIONPREVENTIVE MAINTENANCE WORKSHOP*PURPOSE:*

The Preventive Maintenance Workshop is designed to increase the knowledge and on-the-job efficiency of those employed in operating and maintaining water and wastewater treatment plants. It will teach the trainee good maintenance practices and demonstrate why a good maintenance program is a necessity to maintain efficient operation of the plant and achieve peak performance.

SCOPE:

The Workshop which includes "hands-on" participation covers the following topics:

- A. TOOLS AND WORKSHOP SET-UP
- B. UTILIZATION OF DRAWINGS AND EQUIPMENT MANUALS
- C. MAINTENANCE OF PIPING AND VALVES
- D. LUBRICATION
- E. BEARINGS AND SEALS
- F. ALIGNMENT
- G. PUMP TROUBLESHOOTING
- H. PUMP PACKING & SEALS

*PRE-COURSE**FAMILIARIZATION:*

Pre-course study material, including a Preventive Maintenance Workshop manual, will be provided. When preparing to attend this workshop, an applicant should familiarize himself with the operations described in the manual.

PREREQUISITES:

The candidate must be employed as an operator or maintenance man in a water or wastewater plant.

PASSING GRADE:

70 per cent

REGISTRATION FEE:

\$20.00 payable to "Training and Certification Section".

COURSE DESCRIPTIONMONITORING WATER/WASTEWATER TREATMENT OPERATIONS*PURPOSE:*

The workshop, Monitoring Water and Wastewater Operations, is designed for environmental officers and technicians who have inspection and advisory functions related to municipal and private utility operations. The program emphasizes analysis of process problems, process control and troubleshooting.

SCOPE:

The following topics will be dealt with:

- A. Review of water and wastewater treatment processes
- B. Microbiology and bacteriology
- C. Disinfection
- D. Applied Research Programs
 - (1) Water Technology Section Field and Laboratory Programs
 - (2) Wastewater Treatment Section Field and Laboratory Programs
- E. Flow Measurement
- F. Process Control and Process Control Tests (Water and Wastewater)
- G. Problem solving (Water and Wastewater)

*PRE-COURSE**FAMILIARIZATION:*

Pre-Course study material will be provided. The trainee must:

- (a) Review the Ministry course manual on basic water and wastewater treatment operation.
- (b) Complete a pre-course test to be submitted when registering.

PRE-REQUISITES:

An applicant must be employed as an environmental officer or technician and have a good knowledge of Water/Wastewater treatment processes.

PASSING GRADE:

70 per cent.

REGISTRATION FEE:

\$20.00 payable to " Training and Certification Section".

COURSE DESCRIPTION

PUMP OPERATION WORKSHOP

PURPOSE:

This workshop, developed jointly with the Ontario Municipal Engineers' Association, is designed to increase the knowledge and skills of personnel involved in operating and maintaining all forms of pumping and allied equipment. It is an extension of training for operators of water and wastewater treatment plants.

SCOPE:

The Workshop which includes considerable "hands-on" participation covers the following:

- A. CHARACTERISTICS OF MATERIALS PUMPED
- B. PUMPING THEORY (HYDRAULICS & ENERGY)
- C. TYPE OF PUMPS
- D. POSITIVE DISPLACEMENT PUMPS
- E. CENTRIFUGAL PUMPS
- F. CONTROLS (PUMP APPLICATION PROCESS REQUIREMENT)
- G. VALVES
- H. MOTORS
- I. SAFETY

PRE-COURSE

FAMILIARIZATION:

Pre-course study material will be provided. When preparing to attend this workshop an applicant must review the Pump Operation Workshop Manual.

PRE-REQUISITES:

The candidate must be employed as an operator or maintenance man in a water or wastewater plant.

PASSING GRADE:

70 per cent

REGISTRATION FEE:

\$20.00 payable to "Training and Certification Section".

COURSE DESCRIPTION

INDUSTRIAL ABATEMENT-AIR MANAGEMENT COURSE

PURPOSE:

The Industrial Abatement-Air Management Course consists of three parts. It is designed to familiarize new personnel with the air management aspect of Industrial Abatement, and to increase the efficiency of provincial officers involved with those duties.

SCOPE:

Part I:

- A. INTRODUCTION TO AIR MANAGEMENT: FEDERAL JURISDICTION
- B. EFFECTS OF AIR POLLUTION
- C. FUELS; COMBUSTION; BOILERS; INCINERATION

Part II:

- A. METEOROLOGICAL ASPECTS AND MEASUREMENT OF AIR POLLUTION
- B. AIR CONTAMINANT DEPOSITS; ODOURS
- C. ENVIRONMENTAL OFFICERS' DUTIES; REPORTS
- D. SEWAGE TREATMENT

Part III:

- A. INDUSTRIAL PROCESSES
- B. CONCEPTS OF INDUSTRIAL AIR POLLUTION CONTROL
- C. CONTROL EQUIPMENT

PRE-COURSE

FAMILIARIZATION:

Pre-course study material including a manual will be provided. When preparing to attend any part of this course an applicant must study the training manual.

PREREQUISITES:

An applicant must be a provincial officer responsible for functions related to the air management aspects of the Ministry of the Environment's program.

There is no prerequisite that one part of the course be taken before another, but it is strongly recommended that applicants who are new to this field take Part I first.

PASSING GRADE:

Those trainees who achieve passing grades (60 per cent) for all three parts of the course will be awarded a certificate.

REGISTRATION FEE:

\$20 payable to "Training and Certification Section".

COURSE DESCRIPTION

VISIBLE EMISSIONS IDENTIFICATION CERTIFICATE COURSE

PURPOSE:

The visible Emissions Identification Certificate Course is designed to train Ministry personnel and certify them as being proficient in the identification of the opacities of visible emissions. It will also help to prepare the provincial officer for appearance in court as an expert witness. The course is a combination of lecture and demonstration, with practice.

SCOPE:

The course covers the following topics:

- A. VISIBLE EMISSIONS - THEIR CAUSE AND REGULATION
- B. CLASSIFICATION AND IDENTIFICATION OF SOURCES
- C. PRINCIPLES OF COMBUSTION
- D. METEOROLOGICAL FACTORS IN READING OF VISIBLE EMISSIONS
- E. LEGAL ASPECTS AND COURTROOM APPEARANCES
- F. PRACTICE IN IDENTIFICATION OF OPACITIES OF VISIBLE EMISSIONS

PRE-COURSE

FAMILIARIZATION:

When preparing to attend this course the applicant should read in advance the Visible Emissions Identification Manual, which will be sent out with pre-course material.

PREREQUISITE:

An applicant for certification must be a provincial officer of the Ministry of the Environment.

PASSING GRADE:

- (i) 70 per cent (theoretical instruction)
- (ii) identification of the opacity of a set number of consecutive visible emissions within the permitted deviation standards.

REGISTRATION FEE:

None.

COURSE DESCRIPTIONACOUSTIC TECHNOLOGY CERTIFICATE COURSE*PURPOSE:*

The Acoustic Technology Certificate Course consists of four parts. It is designed to familiarize personnel with the techniques of practical acoustics required to fulfill the obligations of the municipal noise control officer or of other noise control and abatement agencies. Upon successful completion of the appropriate parts of the course, the trainee will be qualified to perform noise control duties at the level indicated by the certificate rank awarded, as follows:

<u>CERTIFICATE</u>	<u>COURSE</u>
Class 1	Acoustics I and II
Class 2	Acoustics I, II and III
Class 3	Acoustics I, II, III, IV

The Ontario Association of Certified Engineering Technicians and Technologists (OACETT) has approved the combined Acoustics I and II Courses as a single credit course for OACETT certification purposes. Consideration of Acoustics III and IV as OACETT credit courses is pending.

*SCOPE:**ACOUSTICS I:*

INTRODUCTORY ACOUSTIC THEORY. LAW. HANDLING OF COMPLAINTS. USE OF SIMPLE SOUND LEVEL METER, OCTAVE BAND ANALYSER AND CALIBRATION TECHNIQUES. MEASUREMENT OF TRAFFIC NOISE AND INDUSTRIAL NOISE. PROCEDURES. REVIEW. EXAMINATION.

ACOUSTICS II:

REVIEW OF PREVIOUS WORK. ACOUSTIC THEORY. LAW, E.P.A., BY-LAW. COMPLAINT STATISTICS. INVESTIGATIONS, REPORT WRITING. ANSI, ISO AND OTHER STANDARDS. USE OF 1/3 OCTAVE ANALYSER, TAPE RECORDER, IMPULSE SLM. AUDIO-METRICS, PERSONAL HEARING TEST. MORE FIELD WORK. REVIEW. EXAMINATION.

ACOUSTICS III:

REVIEW OF PREVIOUS WORK. ACOUSTIC THEORY. LAW, STOP ORDERS, CONTROL ORDERS, PROVINCIAL OFFICER'S REPORT, PROSECUTIONS, GRAPHIC ANALYSER, STATISTICAL ANALYSER. VIBRATION ANALYSIS. ADVANCED STATIONARY SOURCE NOISE ANALYSIS. LABORATORY. FIELD WORK. REVIEW. EXAMINATION.

ACOUSTICS IV:

REVIEW OF PREVIOUS WORK. ADVANCED ACOUSTIC THEORY USE OF STATISTICAL ANALYSER, WESTERN MONITOR, DOSIMETER, REAL TIME ANALYSER. OFF ROAD AND ROADSIDE MEASUREMENTS. LOCATION AND ACOUSTICAL EVALUATION AND LEGAL DOCUMENTATION OF TEST SITES. VISITS TO OTHER MINISTRIES CONCERNED WITH NOISE. LAW. ADVANCED PROCEDURES. SELECTION OF INSTRUMENTATION. REVIEW. EXAMINATION.

PRE-COURSE FAMILIARIZATION:

Pre-course study material, including a manual, will be provided. When preparing to attend any part of this course, an applicant must complete the pre-course requirements.

PRE-REQUISITES:

Courses are to be taken in the order designated. Possession of a valid certificate of a lower rank is a pre-requisite for all courses Acoustic II through Acoustic IV inclusive, but recognition will be given for prior formal training in acoustics.

PASSING GRADE:

Those trainees who achieve a passing grade will be awarded a certificate of competency in acoustic technology in the rank achieved, valid for three calendar years only. The passing grade for all courses will be 60 per cent.

REGISTRATION FEE:

The fee for each part of this four part course is:

- | | |
|---|----------|
| 1. Ontario Government and Municipal employees | \$ 20.00 |
| 2. Others | \$150.00 |

Payable to " Training and Certification Section".

COURSE DESCRIPTION
ACOUSTIC TECHNOLOGY IN LAND USE PLANNING

PURPOSE:

The course on Acoustic Technology in Land Use Planning discusses the impact of noise on land use. It is designed for the Noise Control Officer, urban planner and architect.

SCOPE:

The course, which includes a review of Acoustic Technology Certificate Course I through III, covers the following subjects:

- A. COMMUNITY NOISE SURVEYS
- B. LAND USE CONCEPTS
- C. NOISE MAPS
- D. NOISE CONTOURS
- E. DIGITAL AND STATISTICAL SAMPLING TECHNIQUES
- F. USE OF L_{eq} , L_{90} , L_{dn} , NEF AND OTHER INDICES
- G. FIELD PROJECT
- H. ANALYSIS OF DATA
- I. REVIEW OF LAW, BY-LAW AND PROCEDURES

PRE-COURSE

FAMILIARIZATION:

Candidates must review Part I of the Acoustic Technology Certificate Course.

Pre-Course study material, including a manual, will be provided.

PRE-REQUISITES:

Candidates must have successfully completed Acoustic Technology Certificate Course Part I or have had suitable previous formal training.

PASSING GRADE:

Candidates achieving a passing grade of 60 per cent will be awarded a certificate denoting successful completion of the course.

REGISTRATION FEE:

Payable to "Training and Certification Section"

- | | |
|---|-----------|
| 1. Ontario Government and Municipal Employees | \$ 20.00 |
| 2. Others | \$ 150.00 |

COURSE DESCRIPTION

SEWER AND WATERMAIN DESIGN COURSE

PURPOSE:

This course, developed and conducted jointly with the Ontario Municipal Engineers Association, is intended to broaden the understanding and knowledge of personnel who are engaged in the design of Sewer and Watermain Systems.

SCOPE:

The Course includes presentation and discussion of the following topics:

- A. MANUAL REVIEW
- B. GRAPHS AND CHARTS EXPLANATION
- C. ENGINEERING AGREEMENTS
- D. PROJECT PROCEDURES
- E. MOE APPROVALS
- F. SEWER DESIGN: GENERAL
- G. PROBLEM SOLVING: SEWER DESIGN
- H. SEWER APPURTENANCES
- I. CONSTRUCTION PRACTICES
- J. HOW MAINTENANCE CAN AFFECT DESIGN
- K. PROBLEM SOLVING IN HYDRAULIC ASPECTS OF SEWER DESIGN
- L. WATERMAIN SWABBING
- M. DESIGN OF WATERMAINS AND APPURTENANCES
- N. STRUCTURAL PROBLEM SOLVING IN SEWER DESIGN

PRE-COURSE

FAMILIARIZATION:

Pre-course study material will be provided. Candidates must:

- (a) review the lecture notes and other material mailed out for pre-course study
- (b) answer the pre-course study problems, which will be discussed during the course.

PREREQUISITES:

Candidates for this course should have some basic understanding of sewer and watermain design. Those attending this course should be employed, at least in part, in the design of Sewer and Watermain Systems.

PASSING GRADE:

60%

REGISTRATION FEE:

\$60.00 payable to the Municipal Engineers Association of Ontario.

COURSE DESCRIPTIONMEA/MOE INSPECTORS COURSE NO.1*PURPOSE:*

This course, developed and conducted jointly with the Ontario Municipal Engineers Association, is intended to broaden the understanding and knowledge of inspectors engaged in supervising the construction of Sewers and Watermains.

SCOPE:

The course includes presentations on and discussions of the following topics:

- A. TENDERING & CONTRACT PROCEDURES
- B. T.V. INSPECTION & INTERNAL GROUTING OF SEWER PIPE
- C. LASER ALIGNMENT
- D. PIPE MATERIALS
- E. SEWER CONSTRUCTION AND TESTING
- F. WATERMAIN CONSTRUCTION AND TESTING
- G. CONSTRUCTION LAYOUT
- H. SAFETY PRACTICES AND REGULATIONS
- I. ENVIRONMENTAL ASSESSMENT
- J. EXCAVATION AND BACKFILL
- K. DEWATERING METHODS
- L. TUNNELLING, BLASTING
- M. RESTORATION
- N. INSPECTORS DUTIES AND RECORD KEEPING

*PRE-COURSE**FAMILIARIZATION:*

Pre-course study material will be provided. Personnel attending this course should be familiar with the Regulations in their own area.

PRE-REQUISITES:

Those attending the course should be employed in the private or public sector where at least part of the job function is supervision of the construction of Sewers and Watermains.

PASSING GRADE:

60 per cent.

REGISTRATION FEE:

\$20.00 payable to Municipal Engineers Association of Ontario.

COURSE DESCRIPTIONMEA/MOE INSPECTORS COURSE NO. 2*PURPOSE:*

This course, developed and conducted jointly with the Ontario Municipal Engineers Association, is intended to further broaden the understanding and knowledge of inspectors engaged in supervising the construction of Sewers and Watermains.

SCOPE:

The course includes presentation and discussion of the following topics:

- A. NEW METHODS;BASIC ELEMENTS OF CONSTRUCTION DOCUMENTS
- B. ROLE OF THE INSPECTOR AND RECORD KEEPING
- C. PLANT EQUIPMENT;BASIC SOILS
- D. WATERMAIN DESIGN
- E. SEWER DESIGN
- F. CONSTRUCTION SAFETY
- G. PLANT LAYOUT
- H. PLANT & EQUIPMENT
- I. REINFORCED CONCRETE
- J. BLASTING
- K. CONCRETE HANDLING
- L. CONSTRUCTION PROCEDURES

*PRE-COURSE**FAMILIARIZATION:*

Pre-course study material will be provided. Personnel attending this course should be familiar with the Regulations in their own area.

PRE-REQUISITES:

Those attending the course should be employed in the private or public sector where at least part of the job function is supervision of the construction of Sewer and Watermains and associated treatment structures.

PASSING GRADE:

60 per cent.

REGISTRATION FEE:

\$20.00 payable to Municipal Engineers Association of Ontario.

TRAINING AND CERTIFICATION SECTION

CALENDAR 1977/78

COURSE / WORKSHOP		September			October			November			December			January			February			March			April			May		
		5 12 19 26			3 10 17 24 31			7 14 21 28			5 12 19 26			2 9 16 23 30			6 13 20 27			13 20 27 6			3 10 17 24			1 8 15 22		
1	BASIC SEWAGE TREATMENT OPERATIONS																											
2	PRIMARY TREATMENT & SLUDGE DIGESTION																											
3	ACTIVATED SLUDGE PROCESS																											
4	BASIC GAS CHLORINATION																											
5	PUMP OPERATIONS																											
6	PREVENTIVE MAINTENANCE																											
7	MAINTENANCE GAS FITTERS																											
8	BASIC WATER TREATMENT OPERATIONS																											
9	SURFACE WATER TREATMENT																											
10	SEWER & WATERMAIN DESIGN																											
11	MEA/MOE INSPECTORS COURSE No.1																											
12	MEA/MOE INSPECTORS COURSE No.2																											
13	ACOUSTICS TECHNOLOGY I																											
14	ACOUSTICS TECHNOLOGY II																											
15	ACOUSTICS TECHNOLOGY III																											
16	ACOUSTICS TECHNOLOGY IV																											
17	ACOUSTICS TECHNOLOGY (In Land Use Planning)																											
18	INDUSTRIAL AIR ABATEMENT I																											
19	INDUSTRIAL AIR ABATEMENT II																											
20	INDUSTRIAL AIR ABATEMENT III																											
21	CONTROL OF LIQUID INDUSTRIAL WASTES																											
22	MONITORING WATER / WASTEWATER OPS																											
23	VISIBLE EMISSIONS																											

PROGRAM SCHEDULE - 2017/18

PROGRAM (Capacity)		Dates		Location		Applications to be submitted BEFORE		Remarks
BASIC SEWAGE TREATMENT OPERATIONS (30)		Sept. 19-23	77	OEP Brampton		July 15		OPERATORS ONLY
		Oct. 31-4 Nov.	77	OEP Brampton		AUGUST 15		OPERATORS ONLY
		Jan. 23-27	78	OEP Brampton		NOVEMBER 15		
		Apr. 17-21	78	OEP Brampton		FEBRUARY 15		OPERATORS ONLY
PRIMARY TREATMENT & SLUDGE DIGESTION		Oct. 24-28	77	OEP Brampton		AUGUST 15		OPERATORS ONLY
	(25)	Feb. 20-24	78	OEP Brampton		DECEMBER 15		
		Apr. 24-28	78	OEP Brampton		FEBRUARY 15		OPERATORS ONLY
		Oct. 3-7	77	OEP Brampton		AUGUST 15		OPERATORS ONLY
ACTIVATED SLUDGE PROCESS	(25)	Nov. 28-2 Dec.	77	OEP Brampton		SEPTEMBER 15		OPERATORS ONLY
		Jan. 9-13	78	OEP Brampton		NOVEMBER 15		OPERATORS ONLY
		Mar. 13-17	78	OEP Brampton		JANUARY 15		
		May. 15-19	78	OEP Brampton		MARCH 15		OPERATORS ONLY
BASIC GAS CHLORINATION	(25)	Sept. 26-30	77	OEP Brampton		JULY 15		OPERATORS ONLY
		Nov. 14-18	77	OEP Brampton		SEPTEMBER 15		OPERATORS ONLY
		Dec. 12-16	77	OEP Brampton		OCTOBER 15		OPERATORS ONLY
		Feb. 27-3 Mar.	78	OEP Brampton		DECEMBER 15		OPERATORS ONLY

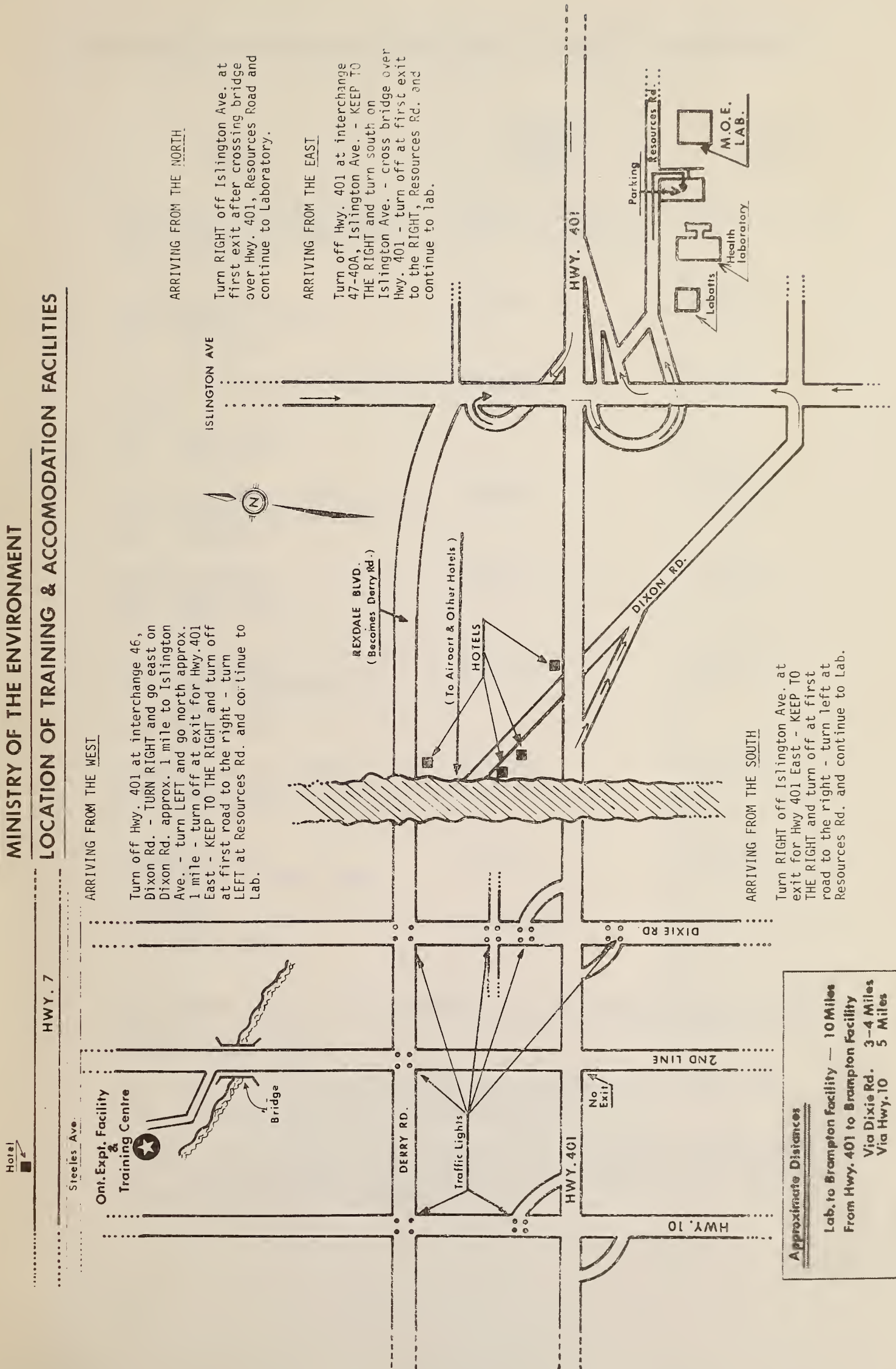
PROGRAM (Capacity)		Dates		Location		Applications to be submitted BEFORE		Remarks
BASIC GAS CHLORINATION (cont'd)		May. 1-5	78	OEP Brampton		MARCH 15		OPERATORS ONLY
PUMP OPERATIONS	(25)	Nov. 21-25	77	OEP Brampton		SEPTEMBER 15		OPERATORS ONLY
		Jan. 16-20	78	OEP Brampton		NOVEMBER 15		OPERATORS ONLY
		Apr. 10-14	78	OEP Brampton		FEBRUARY 15		OPERATORS ONLY
PREVENTIVE MAINTENANCE	(25)	Oct. 17-21	77	OEP Brampton		AUGUST 15		OPERATORS ONLY
		Dec. 5-9	77	OEP Brampton		OCTOBER 15		OPERATORS ONLY
		Mar. 6-10	78	OEP Brampton		JANUARY 15		OPERATORS ONLY
MAINTENANCE GAS FILTERS	(25)	Jan. 30-3 Feb.	78	OEP Brampton		NOVEMBER 15		OPERATORS ONLY
		Apr. 3-7	78	OEP Brampton		FEBRUARY 15		OPERATORS ONLY
BASIC WATER TREATMENT OPERATIONS (30)		Nov. 21-25	77	MOE Lab		SEPTEMBER 15		OPERATORS ONLY
		Jan. 9-13	78	MOE Lab		NOVEMBER 15		OPERATORS ONLY
		Feb. 20-24	78	MOE Lab		DECEMBER 15		
SURFACE WATER TREATMENT	(25)	Oct. 24-28	77	MOE Lab		AUGUST 15		OPERATORS ONLY
		Jan. 30-3 Feb.	78	MOE Lab		NOVEMBER 15		OPERATORS ONLY
		Apr. 3-7	78	MOE Lab		FEBRUARY 15		
SEWER & WATERMAIN DESIGN	(40)	Sept. 26-30	77	MOE Lab		JULY 15		

PROGRAM (Capacity)		Dates		Location		Applications to be submitted BEFORE		Remarks
SEWER & WATERMAIN CONSTRUCTION (40) (Inspectors I)		Dec. 12-16	77	MOE Lab.		OCTOBER 15		
SEWER & WATERMAIN CONSTRUCTION (40) (Inspectors II)		Mar. 13-17	78	MOE Lab.		JANUARY 15		
ACOUSTICS TECHNOLOGY I (25)		Sept. 12-16	77	MOE Lab.		JULY 15		
ACOUSTICS TECHNOLOGY II (25)		Nov. 14-18	77	MOE Lab.		SEPTEMBER 15		
ACOUSTICS TECHNOLOGY III (25)		Feb. 27-3 Mar.	78	MOE Lab.		DECEMBER 15		
ACOUSTICS TECHNOLOGY IV (25)		May. 8-12	78	MOE Lab.		MARCH 15		
ACOUSTICS TECHNOLOGY IN LAND USE PLANNING (25)		Oct. 3-7	77	MOE Lab.		AUGUST 15		
		Jan. 16-20	78	MOE Lab.		NOVEMBER 15		MOE only
INDUSTRIAL AIR ABATEMENT I (30)		May. 1-5	78	MOE Lab.		MARCH 15		MOE only
INDUSTRIAL AIR ABATEMENT II (30)		Oct. 17-20	77	MOE Lab.		AUGUST 15		MOE only
INDUSTRIAL AIR ABATEMENT III (30)		Apr. 10-14	78			FEBRUARY 15		
CONTROL OF LIQUID INDUSTRIAL WASTES (40)				DATES		TO BE DETERMINED		
MONITORING WATER/WASTEWATER OPERATIONS (25) Ops				DATES		TO BE DETERMINED		MOE only
VISIBLE EMISSIONS		May. - June	78	VARIOUS				MOE only

TRAINING AND CERTIFICATION SECTION

MINISTRY OF THE ENVIRONMENT

LOCATION OF TRAINING & ACCOMODATION FACILITIES



ACCOMMODATION AVAILABLE IN THE AREA OF THE MOE LABORATORIES

<u>Hotel</u>	<u>Single Rate</u>	<u>Double Rate</u>
Cambridge Motor Hotel Dixon Rd. & Highway 401 Tel: 249-7671	\$18.00, 21.00	\$23.00, 26.00
Heritage Inn 385 Rexdale Blvd. Tel: 742-5510	\$18.00	\$22.00
Howard Johnson's Airport Hotel 801 Dixon Road Tel: 677-6100	\$24.00	\$28.00
La Plaza Motor Inn 240 Belfied Rd. at Hwy 27 Tel: 241-8513	\$18.00	\$26.00
Skyline Hotel 655 Dixon Rd., Tel: 244-1711	\$29.00	\$35.00
Hotel Triumph 2737 Keele Street at Hwy. 401 Tel: 633-2000	\$25.00	\$29.00
Constellation Hotel 900 Dixon Road Tel: 677-1500	\$29.00	\$35.00
Brampton Inn 226 Queen Street East Brampton L6B IV8 Tel: 451-6000	\$16.00	\$22.00

The above rates were provided by the management of each hotel as current in spring of 1976, and are subject to change with time.

The guest room rates should be confirmed at the time when reservations are being arranged.

A road map showing the location of the MOE Laboratories and other training facilities, and access to the various local hotels is at Appendix 20.

Date Due

SEP - 2 1977	
Ont. Min. of the Environment.	
Information on courses, work-shops, and seminars.	
1977-1978. MOE/INF/AQUL	
DATE	ISSUED TO
SEP - 2 1977	Bourman Lord
SEP - 9 1977	Baxter - T.B.
OCT 2 1977	Varto - T.B.

MOE/INF/AQUL
Ontario Ministry of the En
Information on
courses & workshops aqul
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Environment Ontario
Laboratory Library
125 Resources Rd.
Etobicoke, Ontario M9P 3V6
Canada

